

Quanterra
 2800 George Washington Way
 Richland, Washington 99352-1613

0053281

509 375-3131 Telephone
 509 375-5590 Fax

CERTIFICATE OF ANALYSIS

Bechtel Hanford, Inc.
 3350 George Washington Way
 Richland, WA 99352

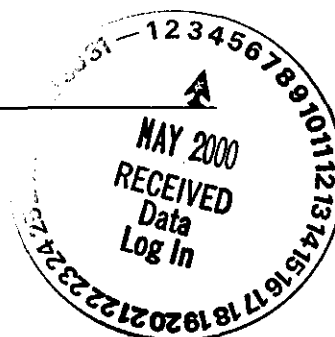
May 4, 2000

RECEIVED
 JUN 26 2000

EDMC

Attention: Joan Kessner

SAF Number	:	C00-014
Date SDG Closed	:	March 22, 2000
Number of Samples	:	Two (2)
Sample Type	:	Water
SDG Number	:	W03107
Data Deliverable	:	45 Day / Summary



I. Introduction

Between March 7, 2000 and March 8, 2000, two water samples were received at STL Richland (STLR) for chemical analysis. Upon receipt, the samples were assigned the following laboratory ID numbers to correspond with the Bechtel Hanford, Inc. (BHI) specific IDs:

<u>STLR ID#</u>	<u>BHI ID#</u>	<u>MATRIX</u>	<u>DATE OF RECEIPT</u>
9D9CEM10	B0XCJ8	WATER	3/7/00
9D9E0610	B0XCL1	WATER	3/8/00

II. Analytical Results/Methodology

The analytical results for this report are presented by laboratory sample ID. Each set of data includes sample identification information, analytical results and the appropriate associated statistical errors.

The requested analysis was:

Chemical Analyses
 Chromium Hex by EPA method 7196

Bechtel Hanford, Inc.

May 4, 2000

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III. Quality Control

The analytical results for each analysis performed under SDG W03107 include a minimum of one Laboratory Control Sample (LCS), one method (reagent) blank, and one duplicate sample analysis. Any exceptions have been noted in the "Comments" section.

Quality control sample results are reported in mg/L.

IV. Comments

Chemical Analyses

Chromium Hex by EPA method 7196:

Sample B0XCL1 was not analyzed due to an administrative error. Since the holding time was not met, the analysis was canceled by the client and a result is not included in the final report. Except as noted, the LCS, batch blank, sample, sample duplicate (B0XCJ8) and sample matrix spike/matrix spike duplicate (B0XCJ8) results are within contractual requirements.

I certify that this Certificate of Analysis is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager, or a designee as verified by the following signature.

Reviewed and approved:



Jackie Waddell
Project Manager

SAMPLE RESULTS

LAB NAME: STL Richland

SDG: /RPT GRP: W03107 / 10405

LOT,RPT DB ID: - 9D9CEM10

MATRIX: WATER

CLIENT ID: B0XCJ8

DATE RECEIVED: 3/7/2000 2:45:00 PM

ANALYTE	RESULT	Q	COUNTING ERROR (2 s)	TOTAL ERROR (2 s)	MDA/IDL	RPT UNIT	YIELD	METHOD NUMBER	WORK ORDE	BAT- CH
HEXCHROME	2.67E-01		N/A	N/A	2.00E-03	mg/L	N/A	EPA7196		

Number of Results: 1

Quanterra Incorporated
13715 Rider Trail North
Earth City, Missouri 63045

314 298-8566 Telephone
314 298-8757 Fax

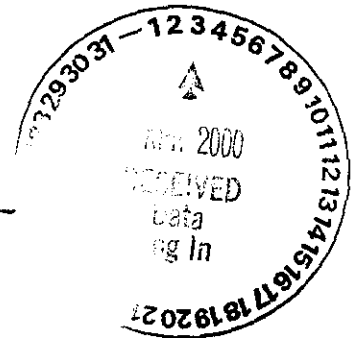
CASE NARRATIVE

Bechtel Hanford Incorporated
3350 George Washington Way
Richland, Washington 99352

March 30, 2000

Attention: Joan Kessner

Project Number	:	34976
SDG	:	W03107
Number of Samples	:	two (2)
Sample Matrix	:	water
Data Deliverable	:	Summary
Date SDG Closed	:	March 22, 2000



II. Introduction

On March 7 and 8, 2000, two (2) "water" sample was received by Quanterra, Richland and transferred to Quanterra, St. Louis for chemical analysis. The samples were received within temperature criteria. See the attached Sample Summary sheet for the client and lab ids for these samples.

III. Analytical Results/ Methodology

The analytical results for this report are presented by analytical test. Each set of data includes sample identification information, analytical results and the appropriate detection limits.

Analyses requested: 300.0 Anions IC: Sulfate (1)

Deviation from Request: There were no deviations.

IV. Definitions

The following codes are used to denote laboratory quality control samples and can be found in the data summary section of this report:

QCBLK- Quality Control Blank, Method Blank
QCLCS- Quality Control Laboratory Control Sample, Blank Spike
MS- Matrix Spike.
DUP- Matrix Duplicate.

Bechtel Hanford Incorporated
March 30, 2000
Project Number: 34976
SDG: W03107
Page 2

V. Comments

General: The term "Detection Limit" used in the analytical data reports refers to either the lab's standard reporting limits or contractually required reporting limits, whichever is applicable.


Please refer to the attached cross-reference table for the standard preparation methods used at Quanterra, St. Louis.

Anions: A Laboratory Control Sample, Method Blank, Matrix Spike and Matrix Duplicate were analyzed with each preparation batch per the protocol for this analysis.

There were no comments or non-conformances associated with this data.

I certify that this Data package is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.

Reviewed and approved:



Marti Ward
St. Louis Project Manager

SAMPLE SUMMARY

POC090191

WO #	SAMPLE#	CLIENT SAMPLE ID	DATE	TIME
D9F4E	001	BOXCJ9	03/07/00	08:27
D9FL9	002	BOXCL2	03/08/00	10:48

NOTE(S) :

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

METHODS SUMMARY

FOC090191

<u>PARAMETER</u>	<u>ANALYTICAL METHOD</u>	<u>PREPARATION METHOD</u>
Sulfate	MCAWW 300.0A	MCAWW 300.0A

References:

MCAWW "Methods for Chemical Analysis of Water and Wastes",
EPA-600/4-79-020, March 1983 and subsequent revisions.

PSL20300
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QUANTERRA INCORPORATED
CLIENT ANALYSIS SUMMARY
Quanterra - St. Louis

Run Date: 3/09/00
Time: 15:25:30
User Id.: SEITHELK

CLIENT: 127642 BECHTEL HANFORD, INC.
PROJECT MANAGER: MARTI WARD
PROJECT #: 100-HRM-IAM
REPORT TO: Bechtel Hanford, Inc.
P.O. NUMBER: MRC-SBB-A-19981
SITE: C00-014
AMOUNT REC'D: 500P
STORAGE LOC: R1D
LOT COMMENTS: Use Richland receipt date
MATRIX: WATER
SAMPLE ID: B0XCJ9
QC PACKAGE: Special Report - see checklist
SAMPLE COMMENTS:
RUN DUP ON ANIONS
Beginning Depth: .00 Ending Depth: .00

QUOTE/SAR #: 34976
LAB ID: F-0C090191-001
WORK ORDER: D9F4E
RECEIVING DATE: 3/07/00
SAMPLING DATE: 3/07/00
ANALYTICAL DUE DATE: 4/07/00N
REPORT DUE DATE: 4/22/00
PRIORITY: 30
SAMPLING TIME: 8:27
RECEIVING TIME: 14:45
SDG# : W03107

***** ANALYSIS *****	WRK LOC	REQUEST DATE	EXTRACTION EXP DATE	ANALYSIS EXP DATE
Sulfate (300.0, Ion Chromatography)	06	3/09/00	0/00/00	4/04/00
NO SAMPLE PREPARATION PERFORMED / DIRECT INJECTION				
(I-88-CY-01) D9F4E-1-01 Protocol: A QC Program: STANDARD TEST SET				

PSL20300
Page 1

QUANTERRA INCORPORATED
CLIENT ANALYSIS SUMMARY
Quanterra - St. Louis

Run Date: 3/09/00
Time: 15:25:30
User Id.: SEITHELK

CLIENT: 127642 BECHTEL HANFORD, INC.
PROJECT MANAGER: MARTI WARD
PROJECT #: 100-HRM-1AM
REPORT TO: Bechtel Hanford, Inc.
P.O. NUMBER: MRC-SBB-A-19981
SITE: C00-014
AMOUNT REC'D: 500P
STORAGE LOC: R1D
LOT COMMENTS: Use Richland receipt date
MATRIX: WATER
SAMPLE ID: B0XCJ9
QC PACKAGE: Special Report - see checklist
SAMPLE COMMENTS:
RUN DUP ON ANIONS
Beginning Depth: .00 Ending Depth: .00

QUOTE/SAR #: 34976
LAB ID: F-0C090191-001-S
WORK ORDER: D9F4E MS
RECEIVING DATE: 3/07/00
SAMPLING DATE: 3/07/00
ANALYTICAL DUE DATE: 4/07/00N
REPORT DUE DATE: 4/22/00
PRIORITY: 30
SAMPLING TIME: 8:27
RECEIVING TIME: 14:45
SDG# : W03107

	WRK LOC	REQUEST DATE	EXTRACTION EXP DATE	ANALYSIS EXP DATE
***** ANALYSIS *****				
Sulfate (300.0, Ion Chromatography)	06	3/09/00	0/00/00	4/04/00
NO SAMPLE PREPARATION PERFORMED / DIRECT INJECTION				
(I-88-CY-01) D9F4E-1-02 Protocol: A QC Program: STANDARD TEST SET				

PSL20300
Page 1

QUANTERRA INCORPORATED
CLIENT ANALYSIS SUMMARY
Quanterra - St. Louis

Run Date: 3/09/00
Time: 15:25:30
User Id.: SEITHELK

CLIENT: 127642 BECHTEL HANFORD, INC.
PROJECT MANAGER: MARTI WARD
PROJECT #: 100-HRM-IAM
REPORT TO: Bechtel Hanford, Inc.
P.O. NUMBER: MRC-SBB-A-19981
SITE: C00-014
AMOUNT REC'D: 500P
STORAGE LOC: R1D
LOT COMMENTS: Use Richland receipt date
MATRIX: WATER
SAMPLE ID: BOXCL2
QC PACKAGE: Special Report - see checklist
SAMPLE COMMENTS:

QUOTE/SAR #: 34976
LAB ID: F-0C090191-002
WORK ORDER: D9FL9
RECEIVING DATE: 3/07/00
SAMPLING DATE: ~~3/07/00~~ 3/3/00
ANALYTICAL DUE DATE: 4/07/00N
REPORT DUE DATE: 4/22/00
PRIORITY: 30
SAMPLING TIME: 10:48
RECEIVING TIME: 14:45
SDG# : W03107

mw
3:10:00
field in
QTime

Beginning Depth: .00 Ending Depth: .00

***** ANALYSIS *****	WRK	REQUEST	EXTRACTION	ANALYSIS
	LOC	DATE	EXP DATE	EXP DATE
Sulfate (300.0, Ion Chromatography)	06	3/09/00	0/00/00	4/04/00
NO SAMPLE PREPARATION PERFORMED / DIRECT INJECTION				
(I-88-CY-01) D9FL9-1-01 Protocol: A QC Program: STANDARD TEST SET				

[illegible]

Figure 1. Sample Check-in List

Date/Time Received: 3800 1500 SDG#: W03107
Work Order Number: JOC080244 SAF#: C00-014
Shipping Container ID: PLUC-170 3/100 Chain of Custody #: C00-014-6
SMIL-PLUC

- 1. Outermost shipping container damaged? Yes ☐ No ☒
- 2. Custody Seals on shipping container intact? Yes ☒ No ☐
- 3. Custody Seals dated and signed? Yes ☒ No ☐
- 4. Chain-of-Custody record present? Yes ☒ No ☐
- 5. Chain-of-Custody includes the following information:
 - Client name Yes ☒ No ☐
 - Project name or number Yes ☒ No ☐
 - Sample date/time for each sample Yes ☒ No ☐
 - Container types, sizes and number of containers Yes ☒ No ☐
 - Short description of sample, i.e., matrix Yes ☒ No ☐
 - Analyses requested Yes ☒ No ☐
 - Preservation used or "none" or N/A if not applicable Yes ☒ No ☐
 - Date and time of relinquish and receipt Yes ☒ No ☐
 - Signatures of those persons relinquishing and receiving Yes ☒ No ☐
- 6. Sample numbers on chain of custody match those on sample containers? Yes ☒ No ☐
- 7. Collection date and date of laboratory receipt are within project specific holding time requirements? Yes ☒ No ☐
- 8. Cooler temperature: 4°C 3 Bottles
- 9. Vermiculite/packing materials is: Wet ☐ Dry ☒

10. Samples have:	<input checked="" type="checkbox"/> tape	<input type="checkbox"/> hazard labels
	<input checked="" type="checkbox"/> custody seals	<input type="checkbox"/> appropriate sample labels
11. Samples are:	<input checked="" type="checkbox"/> in good condition	<input type="checkbox"/> leaking
	<input type="checkbox"/> broken	<input type="checkbox"/> have air bubbles

- 12. Were any anomalies identified in sample receipt? Yes ☐ No ☒
- 13. Description of anomalies (include sample numbers): _____

Sample Custodian/Laboratory: L. J. Denlinger Date: 3800
Telephone/Fax/E-mailed to: _____ On _____ By _____

Figure 1. Sample Check-in List

Date/Time Received: 3-7-00 1445 SDG#: W03107
 Work Order Number: JOC070226 SAF#: C00-014
 Shipping Container ID: PLUG Chain of Custody #: C00-014-29

1. Outermost shipping container damaged? Yes ☐ No ☒
2. Custody Seals on shipping container intact? Yes ☒ No ☐
3. Custody Seals dated and signed? Yes ☒ No ☐
4. Chain-of-Custody record present? Yes ☒ No ☐
5. Chain-of-Custody includes the following information:
 - Client name Yes ☒ No ☐
 - Project name or number Yes ☒ No ☐
 - Sample date/time for each sample Yes ☒ No ☐
 - Container types, sizes and number of containers Yes ☒ No ☐
 - Short description of sample, i.e., matrix Yes ☒ No ☐
 - Analyses requested Yes ☒ No ☐
 - Preservation used or "none" or N/A if not applicable Yes ☒ No ☐
 - Date and time of relinquish and receipt Yes ☒ No ☐
 - Signatures of those persons relinquishing and receiving Yes ☒ No ☐
6. Sample numbers on chain of custody match those on sample containers? (3) YES Yes ☒ No ☐
7. Collection date and date of laboratory receipt are within project specific holding time requirements? Yes ☒ No ☐
8. Cooler temperature: 4°C
9. Vermiculite/packing materials is: Wet ☐ Dry ☒

10. Samples have: <input checked="" type="checkbox"/> tape <input checked="" type="checkbox"/> custody seals	_____ hazard labels _____ appropriate sample labels
11. Samples are: <input checked="" type="checkbox"/> in good condition _____ broken	_____ leaking _____ have air bubbles

12. Were any anomalies identified in sample receipt? Yes ☐ No ☒
13. Description of anomalies (include sample numbers): _____

Sample Custodian/Laboratory: L. J. Henderson Date: 3-7-00
 Telephone/Fax/E-mailed to: _____ On _____ By _____



000117

Lot No.: F0C090191

Condition Upon Receipt Variance Report
St. Louis Laboratory

W03107

Client: Richland
Quote No: 34976
Shipper/No: 401262012
Condition/Variance (Check all that apply):

Date: 3-9-00 Time: 0910
Initiated by: [Signature]
RFA/COC Numbers: C00-014

1. <input type="checkbox"/> Sample received broken/leaking.	8. <input type="checkbox"/> Sample ID on container does not match sample ID on paperwork. Explain: _____
2. <input type="checkbox"/> Sample received without proper preservative. <input type="checkbox"/> Cooler temperature not within 4°C ± 2°C Record temperature: _____ <input type="checkbox"/> pH _____ <input type="checkbox"/> other: _____	9. <input type="checkbox"/> All coolers on airbill not received with shipment.
3. <input type="checkbox"/> Sample received in improper container.	10. <input type="checkbox"/> Sample volume insufficient for analysis
4. <input type="checkbox"/> Sample received without proper paperwork. Explain: _____	11. <input type="checkbox"/> Other (explain below) _____
5. <input type="checkbox"/> Paperwork received without sample.	
6. <input type="checkbox"/> No sample ID on sample container.	
7. <input type="checkbox"/> Custody tape disturbed/broken/missing/not tamper evident type (circle all that apply).	

☒ No variances were noted during sample receipt.
☒ Cooler Temperature Upon Receipt in °C: 2.5°
☐ Temperature Variance Does Not Affect the Following Analyses: _____

Notes: _____

Corrective Action:

☐ Client's Name: _____ Informed verbally on: _____ By: _____
☐ Client's Name: _____ Informed in writing on: _____ By: _____
☐ Sample(s) processed "as is". _____
☐ Sample(s) on hold until: _____ If released, notify: _____

Sample Control Supervisor Review: [Signature] Date: 3-9-00
Project Management Review: [Signature] Date: 3-10-00

SIGNED ORIGINAL MUST BE RETAINED IN THE PROJECT FILE

BECHTEL HANFORD, INC.

Client Sample ID: B0XCJ9

General Chemistry

Lot-Sample #...: F0C090191-001 Work Order #...: D9F4E Matrix.....: WATER
Date Sampled...: 03/07/00 Date Received...: 03/07/00

<u>PARAMETER</u>	<u>RESULT</u>	<u>RL</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>PREP BATCH #</u>
Sulfate	70.3	2.5	mg/L	MCAWW 300.0A	03/17/00	0088283
Dilution Factor: 5			MDL.....: 0.54			

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: F0C090191

Work Order #...: D9F4E-SMP
D9F4E-DUP

Matrix.....: WATER

Date Sampled...: 03/07/00

Date Received..: 03/07/00

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Sulfate	70.3	67.8	mg/L	3.6	(0-20)	SD Lot-Sample #: F0C090191-001 MCAWW 300.0A	03/17/00	0088283
Dilution Factor: 5								

BECHTEL HANFORD, INC.

Client Sample ID: B0XCL2

General Chemistry

Lot-Sample #....: F0C090191-002

Work Order #....: D9FL9

Matrix.....: WATER

Date Sampled....: 03/08/00

Date Received...: 03/08/00

<u>PARAMETER</u>	<u>RESULT</u>	<u>RL</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>PREP BATCH #</u>
Sulfate	134	5.0	mg/L	MCAWW 300.0A	03/17/00	0088283
		Dilution Factor: 10		MDL.....: 1.1		

LABORATORY CONTROL SAMPLE DATA REPORT

General Chemistry

Lot-Sample #...: F0C090191

Matrix.....: WATER

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Sulfate								
	4.00	3.66	mg/L	91		MCAWW 300.0A	03/17/00	0088283
	4.00	3.67	mg/L	92	0.19	MCAWW 300.0A	03/17/00	0088283

WO#: DA5A1102-LCS/DA5A1103-LCSD LCS Lot-Sample#: F0C280000-283

Dilution Factor: 1

NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bechtel Hanford

Analysis By

Severn Trent Laboratories Richland

2800 G.W. Way, Richland, Wa 99352, (509) 375-3131

Report Nbr: 10405

SDG No.

W03107

SAF No.

C00-014

CLIENT ID No.

B0XCJ8

STL ID No.

9D9CEM10



Comments:

0001

Quanterra
2800 George Washington Way
Richland, Washington 99352-1613

509 375-3131 Telephone
509 375-5590 Fax

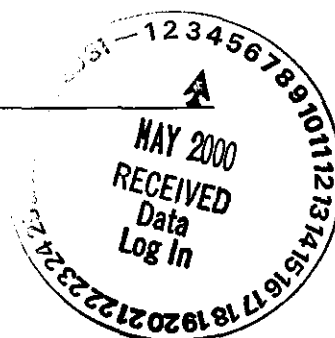
CERTIFICATE OF ANALYSIS

Bechtel Hanford, Inc.
3350 George Washington Way
Richland, WA 99352

May 4, 2000

Attention: Joan Kessner

SAF Number	:	C00-014
Date SDG Closed	:	March 22, 2000
Number of Samples	:	Two (2)
Sample Type	:	Water
SDG Number	:	W03107
Data Deliverable	:	45 Day / Summary



I. Introduction

Between March 7, 2000 and March 8, 2000, two water samples were received at STL Richland (STLR) for chemical analysis. Upon receipt, the samples were assigned the following laboratory ID numbers to correspond with the Bechtel Hanford, Inc. (BHI) specific IDs:

<u>STLR ID#</u>	<u>BHI ID#</u>	<u>MATRIX</u>	<u>DATE OF RECEIPT</u>
9D9CEM10	B0XCJ8	WATER	3/7/00
9D9E0610	B0XCL1	WATER	3/8/00

II. Analytical Results/Methodology

The analytical results for this report are presented by laboratory sample ID. Each set of data includes sample identification information, analytical results and the appropriate associated statistical errors.

The requested analysis was:

Chemical Analyses
Chromium Hex by EPA method 7196

Bechtel Hanford, Inc.
May 4, 2000
Page 2

III. Quality Control

The analytical results for each analysis performed under SDG W03107 include a minimum of one Laboratory Control Sample (LCS), one method (reagent) blank, and one duplicate sample analysis. Any exceptions have been noted in the "Comments" section.

Quality control sample results are reported in mg/L.

IV. Comments

Chemical Analyses

Chromium Hex by EPA method 7196:

Sample B0XCL1 was not analyzed due to an administrative error. Since the holding time was not met, the analysis was canceled by the client and a result is not included in the final report. Except as noted, the LCS, batch blank, sample, sample duplicate (B0XCJ8) and sample matrix spike/matrix spike duplicate (B0XCJ8) results are within contractual requirements.

I certify that this Certificate of Analysis is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager, or a designee as verified by the following signature.

Reviewed and approved:



Jackie Waddell
Project Manager

SAMPLE RESULTS

LAB NAME: STL Richland

SDG: /RPT GRP: W03107 / 10405

LOT,RPT DB ID: - 9D9CEM10

MATRIX: WATER

CLIENT ID: B0XCJ8

DATE RECEIVED: 3/7/2000 2:45:00 PM

ANALYTE	RESULT	Q	COUNTING ERROR (2 s)	TOTAL ERROR (2 s)	MDA/IDL	RPT UNIT	YIELD	METHOD NUMBER	WORK ORDE	BAT- CH
HEXCHROME	2.67E-01		N/A	N/A	2.00E-03	mg/L	N/A	EPA7196		

Number of Results:

DUPLICATE RESULTS

LAB NAME: STL Richland SDG: /RPT GRP: W03107 / 10405
LOT,RPT DB ID: - D9CEM14R MATRIX: WATER
CLIENT ID: B0XCJ8 DATE RECEIVED: 3/7/2000 2:45:00 P
ORIG LAB ID: 9D9CEM10

ANALYTE	DUP RESULT	COUNTING Q ERROR (2 s)	TOTAL ERROR (2 s)	MDA/ IDL	REPORT UNIT	YIELD	METHOD NUMBER	ORIG RESULT	RPD
HEXCHROME	2.68E-01	N/A	N/A	2.00E-03	mg/L	N/A	EPA7196	2.67E-01	0.37%

Number of Results:

BLANK RESULTS

LAB NAME: STL Richland

SDG /RPT GRP: W03107 / 10405

LOT,RPT DB ID: - D9DQ911B

MATRIX: WATER

ANALYTE	RESULT	Q	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA/IDL	RPT UNIT	YIELD	METHOD NUMBER	WORK ORDE	BAT- CH
HEXCHROME	0.00E+00	U	N/A	N/A	2.00E-03	mg/L	N/A	EPA7196		

Number of Results:

LABORATORY CONTROL SAMPLE**LAB NAME:** STL Richland**SDG: /RPT GRP:** W03107 / 10405**LAB SAMPLE ID:** D9DQ912S**MATRIX:** WATER

ANALYTE	RESULT	Q	COUNTING ERROR (2 s)	TOTAL ERROR (2 s)	MDA/ IDL	REPORT UNIT	YIELD	EXPECTED	RECOVERY
HEXCHROME	5.02E-01		N/A	N/A	2.00E-03	mg/L	N/A	5.00E-01	100.40%

Number of Results:

MATRIX SPIKE RESULTS

LAB NAME: STL Richland SDG: /RPT GRP: W03107 / 10405
LAB SAMPLE ID: D9CEM12W MATRIX: WATER

ANALYTE	SPIKE RESULT*	Q	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA/IDL	REPORT UNIT	SAMPLE RESULT	EXPECTED	RECOVERY
HEXCHROME	5.02E-01		N/A	N/A	2.00E-03	mg/L	2.67E-01	5.26E-01	95.44%

Number of Results:

*Spike Result Corrected For Sample Result

Result = IDL When Not Detected

(Q)ualifiers: U = Analyte result < MDA/IDL,
J = No U qualifier and result < RDL.

Severn Trent Laboratories Richland
rptChemRadMatrixSpike; v3.41

0008

MATRIX SPIKE RESULTS

LAB NAME: STL Richland

SDG: /RPT GRP: W03107 / 10405

LAB SAMPLE ID: D9CEM13W

MATRIX: WATER

ANALYTE	SPIKE RESULT*	Q	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA/IDL	REPORT UNIT	SAMPLE RESULT	EXPECTED	RECOVERY
HEXCHROME	5.08E-01		N/A	N/A	2.00E-03	mg/L	2.67E-01	5.26E-01	96.58%

Number of Results:

*Spike Result Corrected For Sample Result

Result = IDL When Not Detected

(Q)ualifiers: U = Analyte result < MDA/IDL,
J = No U qualifier and result < RDL.

Severn Trent Laboratories Richland
rptChemRadMatrixSpike; v3.41

0009

CHAIN OF CUSTODY

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. #

C00-014-29

Page 1 of 1

Collector **J.H. NEER**

Contact/Requester
JH KESSNER

Telephone No. (509) 3754688	MSIN	FAX
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SAF No.
C00-014

Sampling Origin
HANFORD SITE

Purchase Order/Charge Code

Project Title	100-HR3-IAM (1 & 2) GW MONITORING, FEBRUARY 2000
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Logbook No. 101 SHWS -H34

Ice Chest No. *D1118* Temp.Shipped To (Lab)
Quanterra Incorporated

Method of Shipment
GOVT. VEHICLE

Bill of Lading/Air Bill No.

Protocol
CERCLA

Data Turnaround
45 Days

Offsite Property No.

POSSIBLE SAMPLE HAZARDS/REMARKS	
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SPECIAL INSTRUCTIONS

Hold Time

Total Activity Exemption: Yes ☒ No ☐

SPG W03107

JOC070226

[illegible]

Relinquished By **J.H. NEER** Print *J.H. Neer* Sign **MAR 07 2000** Date/Ti

Received By K. Schenker Print K. Schenker Sign [Signature] Date/Time 1000 PM 3/7/00

Matrix *

S	= Soil	DS	= Drum Solid
SE	= Sediment	DL	= Drum Liquid
SO	= Solid	T	= Tissue
Sl	= Sludge	Wl	= Wine
W	= Water	L	= Liquid
O	= Oil	V	= Vegetation
A	= Air	X	= Other

Relinquished By _____ Date/Time _____

Received By	Date/Time
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Relinquished By _____ Date/Time _____

Received By _____ Date/Time: _____

Relinquished By _____ Date/Time _____

Received By _____ Date/Time _____

FINAL SAMPLE DISPOSITION

Disposal Method (e.g., Return to customer, per lab procedure, used in process)

Disposed By

Date/Time

0014

Figure 1. Sample Check-in List

Date/Time Received: 3700 1445 SDG#: W03107
 Work Order Number: JOCO70226 SAF#: C00-014
 Shipping Container ID: PLUG Chain of Custody #: C00-014-29

1. Outermost shipping container damaged? Yes ☐ No ☒
2. Custody Seals on shipping container intact? Yes ☒ No ☐
3. Custody Seals dated and signed? Yes ☒ No ☐
4. Chain-of-Custody record present? Yes ☒ No ☐
5. Chain-of-Custody includes the following information:
 - Client name Yes ☒ No ☐
 - Project name or number Yes ☒ No ☐
 - Sample date/time for each sample Yes ☒ No ☐
 - Container types, sizes and number of containers Yes ☒ No ☐
 - Short description of sample, i.e., matrix Yes ☒ No ☐
 - Analyses requested Yes ☒ No ☐
 - Preservation used or "none" or N/A if not applicable Yes ☒ No ☐
 - Date and time of relinquish and receipt Yes ☒ No ☐
 - Signatures of those persons relinquishing and receiving Yes ☒ No ☐
6. Sample numbers on chain of custody match those on sample containers? 3 BOTTLES Yes ☒ No ☐
7. Collection date and date of laboratory receipt are within project specific holding time requirements? Yes ☒ No ☐
8. Cooler temperature: N/A
9. Vermiculite/packing materials is: Wet ☐ Dry ☒

10. Samples have: ☒ tape ☐ hazard labels
☒ custody seals ☐ appropriate sample labels

11. Samples are: ☒ in good condition ☐ leaking
☐ broken ☐ have air bubbles

12. Were any anomalies identified in sample receipt? Yes ☐ No ☒
13. Description of anomalies (include sample numbers): _____

Sample Custodian/Laboratory: K. J. Henderson Date: 3-7-00
 Telephone/Fax/E-mailed to: _____ On _____ By _____

Client Sample Screening Results

08-Mar-00

② 3/8/00

CLIENT CODE	ID	MATRIX	RECEIVED	DETECTOR	ACQ DATE	SAMPLE	MINUTES	CNTS A	NET CPM A	CNTS B	NET CPM B	
BHI	B0XCJ8D9CEM		3/8/2000 2:30:00 PM	QUAD24D	3/8/2000 3:45:18 PM	B0XCJ8D9CEM	.30	16	0.44	60	1.07	
	D9CEM	SOLID		Bkg:	3/8/2000 1:43:10 AM	BKG	600	56	0.093333333	558	0.93	
Anl Date:	3/8/00	Tot Sa, Alq:	5.00E-01	, 1.00E+01	Alp;	(Dpm/ 1.31E+00	(uCV/ 2.94E-05	(pCV/ 5.89E+01	± 2.5E+01	CAT	8.5E-01	Lab
Ppt mg:	3.8	Units:	g	, mg	Bet; Alq):	1.85E+00	Sa): 4.16E-05	L g): 8.33E+01	± 2.2E+01	I	1.2E+00	Alq L g

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08-Mar-00

Quanterra Environment Services, SCP V2.03

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Figure 1. Sample Check-in List

Date/Time Received: 3800 1500 SDG#: W03107
 Work Order Number: JOC080244 SAF#: C00-014
 Shipping Container ID: SMX-PLUG Chain of Custody #: C00-014-6

1. Outermost shipping container damaged? Yes ☐ No ☒
2. Custody Seals on shipping container intact? Yes ☒ No ☐
3. Custody Seals dated and signed? Yes ☒ No ☐
4. Chain-of-Custody record present? Yes ☒ No ☐
5. Chain-of-Custody includes the following information:
 - Client name Yes ☒ No ☐
 - Project name or number Yes ☒ No ☐
 - Sample date/time for each sample Yes ☒ No ☐
 - Container types, sizes and number of containers Yes ☒ No ☐
 - Short description of sample, i.e., matrix Yes ☒ No ☐
 - Analyses requested Yes ☒ No ☐
 - Preservation used or "none" or N/A if not applicable Yes ☒ No ☐
 - Date and time of relinquish and receipt Yes ☒ No ☐
 - Signatures of those persons relinquishing and receiving Yes ☒ No ☐
6. Sample numbers on chain of custody match those on sample containers? Yes ☒ No ☐
7. Collection date and date of laboratory receipt are within project specific holding time requirements? Yes ☒ No ☐
8. Cooler temperature: 4°C 3 Batteries
9. Vermiculite/packing materials is: Wet ☐ Dry ☒

10. Samples have: <input checked="" type="checkbox"/> tape <input checked="" type="checkbox"/> custody seals	<input type="checkbox"/> hazard labels <input type="checkbox"/> appropriate sample labels
11. Samples are: <input checked="" type="checkbox"/> in good condition <input type="checkbox"/> broken	<input type="checkbox"/> leaking <input type="checkbox"/> have air bubbles

12. Were any anomalies identified in sample receipt? Yes ☐ No ☒
13. Description of anomalies (include sample numbers): _____

Sample Custodian/Laboratory: A. J. Denlinger Date: 3-8-00
 Telephone/Fax/E-mailed to: _____ By _____

Client Sample Screening Results

09-Mar-00

3/9/00

CLIENT CODE	ID	MATRIX	RECEIVED	DETECTOR	ACQ DATE	SAMPLE	MINUTES	CNTS A	NET CPM A	CNTS B	NET CPM B
BHI	B0XCL1D9E06		3/9/2000 7:30:00 AM	QUAD21D	3/9/2000 10:30:47 AM	B0XCL1D9E06	30	33	0.971666667	113	2.74333333
	D9E06	LIQUID		Bkg:	3/9/2000 2:12:08 AM	BKG	600	77	0.128333333	614	1.02333333
Am Date: 3/9/00 Tot Sa, Alq: 5.00E-01 , 1.00E+01 Alp: (Dpm/ 3.06E+00 (uCi/ 6.90E-05 (pCi/ 1.38E+02 + 3.2E+01 CAT 1.8E-01 Lab Ppt mg: 4.3 Units: L , ml Bet: Alq): 4.88E+00 Sa): 1.10E-04 L/g): 2.20E+02 + 3.1E+01 2.3E-01 Alq L/g											

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09-Mar-00

Quanterra Environment Services, SCP V2.03

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RQC050

Quanterra Incorporated
WET CHEM BATCHSHEET
RichlandRun Date: 3/08/00
Time: 14:04:33

PRODUCTION FIGURES - WET CHEM

<u>TOTAL</u> <u>NUMBER</u>	<u>SAMPLE</u> <u>NUMBER</u>	<u>QC</u>	<u>RE-RUN</u> <u>MATRIX</u>	<u>RE-RUN</u> <u>OTHER</u>	<u>MISC</u> <u>NUMBER</u>	<u>TOTAL</u> <u>HOURS</u>	<u>EXPANDED</u> <u>DELIVERABLE</u>
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METHOD: EA Hexavalent Chromium
QC BATCH #: 0068305
PREP DATE: 3/08/00
USER: ROSSR6A)
INITIALS:
PREP
ANALDATA ENTRY:
INITIALS
DATE

<u>Work Order</u>	<u>Lab Number</u>	<u>Structured</u> <u>Analysis</u>	<u>Exp.</u> <u>Del.</u>	<u>Analysis</u> <u>Date</u>	<u>Sample ID:</u>
D9CEM-1-01	J-0C070226-001	XX I 88 EA 5I			BOXCJ8
D9CEM-1-03	J-0C070226-001-D	XX I 88 EA 5I			BOXCJ8
D9CEM-1-02	J-0C070226-001-S	XX I 88 EA 5I			BOXCJ8
D9CEM-1-04	J-0C070226-001-X	XX I 88 EA 5I			BOXCJ8 DUP
D9DQ9-1-01	J-0C080000-305-B	XX I 88 EA 5I			INTRA-LAB BLANK
D9DQ9-1-02	J-0C080000-305-C	XX I 88 EA 5I			INTRA-LAB CHECK

Control Limits

(85-115)

(85-115)

(85-115)

0020

COC Signature Page

Lot or Batch #:	Initials/Date	Procedure #
Released By	<u>RA 3-8-00</u>	<u>Richrc0009</u>
Received	<u>MJ 3/8/00</u>	<u>RICHWC 5003 R4</u>
Released By	<u>MJ 3/9/00</u>	<u>n/a</u>
Received		
Released By		<u>n/a</u>
Received		
Released By		<u>n/a</u>
Received		
Released By		<u>n/a</u>
Received		
Released By		<u>n/a</u>
Received		
Released By		<u>n/a</u>
Received		

RC-131, Rev.1, 6/99